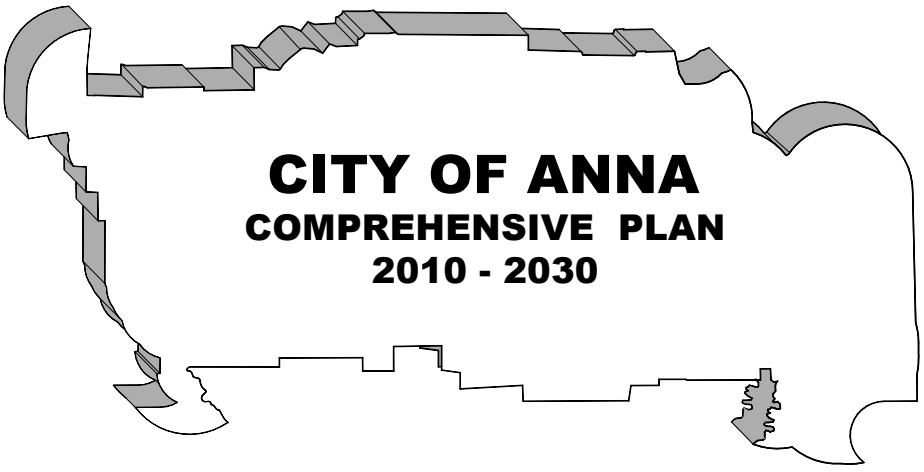
APPENDIX A



CITY OF ANNA
COMPREHENSIVE PLAN
2010 - 2030

APPENDIX A
THOROUGHFARE STANDARDS

CITY OF ANNA
DEVELOPMENT SERVICES DEPARTMENT

Rules And Regulations Governing The Design & Construction of Streets

And Thoroughfares, Sidewalks, & Appurtenances

SECTION I. STREET DESIGN STANDARDS

A. **For city of Anna's Thoroughfare Definitions** – see Table 1:

TABLE 1
CITY OF ANNA'S THOROUGHFARE DEFINITIONS

TYPE	DESIGNATION	R.O.W.	PAVEMENT (Face to Face)	Median (Face to Face)
Expressway*	E	150'-500'	NA	NA
Major Arterial	A1	120'	2 @ 36'	26'
Minor Arterial Divided	A2D	90'	24'	20'
Minor Arterial	A2	80'	48'	None
Neighborhood/Collector	C	60'	36'	None
Local Residential	R	50'	31'	None

*Includes U.S. Highway 75 and the Collin County Outer Loop.

Above defined by the City of Anna, Texas, Comprehensive Plan and most recent Major Thoroughfare Plan.

B. **Minimum Horizontal Design Radius** – Minimum Centerline Radius is defined by the design speed of the respective street. The design speed of each street in the City of Anna, as defined by the Thoroughfare Plan, can be determined from Table 2.

TABLE 2
DESIGN SPEED OF EACH TYPE OF STREET

STREET TYPE	DESIGN SPEED
E	65
A1	40
A2,A2D	35
R,C	30

The minimum acceptable horizontal centerline radius, for each respective street's design speed, is shown in Table 3.

TABLE 3
MINIMUM HORIZONTAL CENTERLINE RADIUS

Street Classification	Minimum Radius (FT)
E Expressway	*
A1 Major Arterial	1,000
A2 Minor Arterial Divided	850
A2 Minor Arterial	850
C Neighborhood/Collector	600
R Local Residential	450

*TXDOT OR Collin Co. standards apply.

Minimum Centerline design radius for residential streets shall be 300 feet for curves. This does not apply to turns approximating 90°. Maximum length of a horizontal curve on Type C, D, or E roadways shall not exceed 1.6 times the centerline radius for a radius of 300 feet or greater.

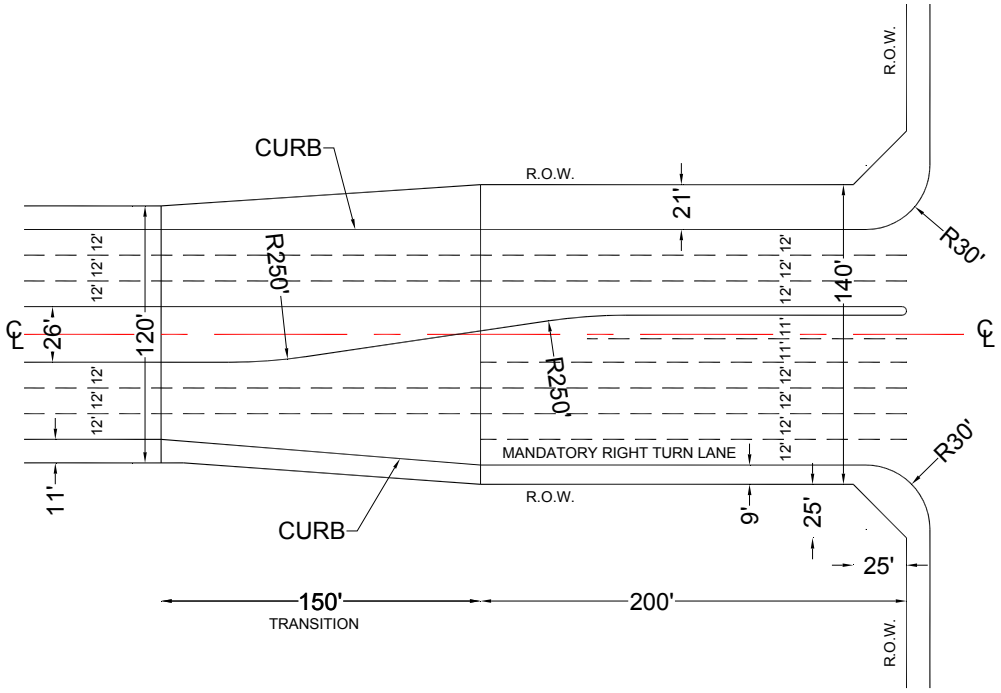
C. **Intersection Design**

1. Street intersections shall be radial or perpendicular, within a five-degree tolerance, at the intersection or the right-of-way lines.
2. The radius shall be 30 feet at all A1 intersections.
3. At all other intersecting streets, the radius shall be 20 feet.

Note: At intersections, the curb radius encroaches on the right-of-way so as to not provide sufficient room for sidewalks, utilities, etc. within the parkway. Therefore, right-of-way shall be dedicated at the intersection of all streets such that a minimum of 9 feet of parkway shall be maintained from the back of the curb along the curb's radius.

FIGURE 1

INTERSECTION OF TYPE "A1" R.O.W. REQUIREMENTS AND POSSIBLE TOTAL BUILD OUT



D. R-O-W at a Type "A1" Intersection – Right-of-Way Width for a Type "A1" Thoroughfare at the intersection of a Type "A1 or "A2" Thoroughfare shall be 140 feet for a distance of 200 feet and then a 15:1 slope to the standard width to allow a build-out (see Figure 1). Right-turn lane required al all such intersections and on freeway service roads at their approach to intersections with Type "A1" through Type "A2" thoroughfares.

E. Residential Frontage – Residential houses shall not front a Type "A1, A2 or thru E" thoroughfare unless parallel access roads are provided. Minimum distances between adjacent curbs of the thoroughfare and the access road shall be 20 feet. Frontage Road R.O.W. shall be in addition to the Thoroughfare R.O.W.

SECTION II. MEDIAN AND LEFT TURN LANE DESIGN STANDARDS

A. Width of Median – Median widths vary from a minimum of 4' at the nose to a maximum of 26'.

B. Required Median Openings and Left-Turn lanes – Median openings on divided thoroughfares shall be required at all street intersections and at private drives where they conform to the City's spacing requirements. The median opening shall be accompanied by a left turn lane for the proposed drive or street.

C. Cost of Median Openings and Left-Turn Lanes – Median openings and left-turn lanes constructed to serve private drives and new roads shall be paved to City standards, inspected by City inspectors, and paid for by owners served by the median openings and left-turn lanes. The City of Anna shall pay the costs of median openings and left-turn lanes constructed to serve existing dedicated streets and drives, when a Capital Improvement widening program is undertaken by the City of Anna on an existing public street.

D. Minimum Left – Turn Storage, Transition Length, and Median Opening Width, Location, and Spacing Requirements.

1. Left turn Storage All left-turn storage areas shall be 11 feet wide with minimum storage requirements for left-turn lanes as in Table 6.
2. Transition Length The Transition curves used in left-turn lanes shall have a total transition length of 150 feet.
3. Median opening, width, location and spacing
    a. Median opening at intersections shall be from right-of-way to right-of-way of the intersecting street, unless otherwise approved by the Transportation Engineer.
    b. The Width of mid-block median openings shall not be less than 60 feet, or greater than 70 feet.

c. Using the above requirements, examples of the minimum distance between median openings on a divided street where left-turn storage is provided in both directions are:

(1) 360 feet from nose to nose of the median from the intersection of two major thoroughfares to a street or drive (see Figure 5).

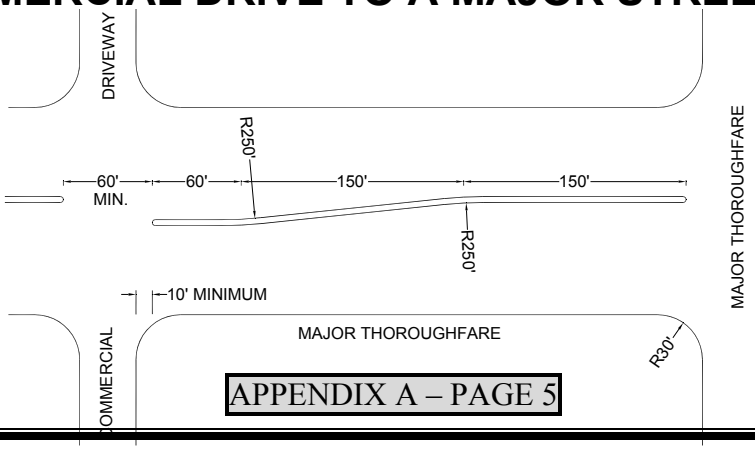
(2) 310 feet from nose to nose of the median from the intersection of two secondary thoroughfares or a secondary thoroughfare and a major thoroughfare to a residential street or a drive, and,

(3) 270 feet from nose to nose of the median for intersection combinations of drives and/or residential streets.

TABLE 4
MINIMUM LEFT TURN STORAGE REQUIREMENTS

Intersecting Thoroughfares	Minimum Storage
A1 with A1	150 feet
A1 with A2	100 feet
A1 with R	60
A1 with Private Drive	60
A2D with A1	100

FIGURE 2
TYPICAL MEDIAN SPACING ON A MAJOR STREET FROM A COMMERCIAL DRIVE TO A MAJOR STREET



E. Medians Where No Left Turn Pocket is Needed

(1) If left-turn storage is provided in only one direction, (i.e., a drive cannot be installed for the other direction), the minimum length of median must be the required left-turn storage and transition length, plus 30 feet of median length beyond the end of the transition, as reflected in Figure 6.

(2) If the left-turn storage is not required in either direction, but the median is simply a spacer between two median openings, the minimum length of the spacer must be 50 feet (see Figure 6).

F. Medians into Developments on Public Street – Medians installed on undivided streets at entrances to subdivisions for aesthetic or any other purpose shall be a minimum of 4 feet wide and 100 feet long.

FIGURE 3

TYPICAL MEDIAN DIMENSIONS WITHOUT BACK TO BACK LEFT TURN POCKET (* SEE FIGURE 4)

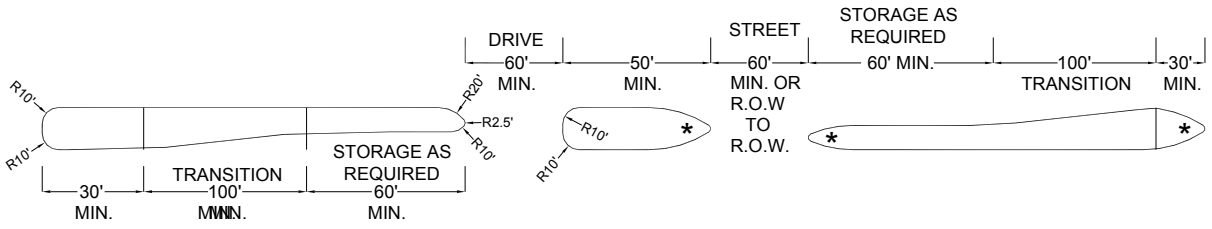


FIGURE 4

MEDIAN BULLET NOSE DETAIL

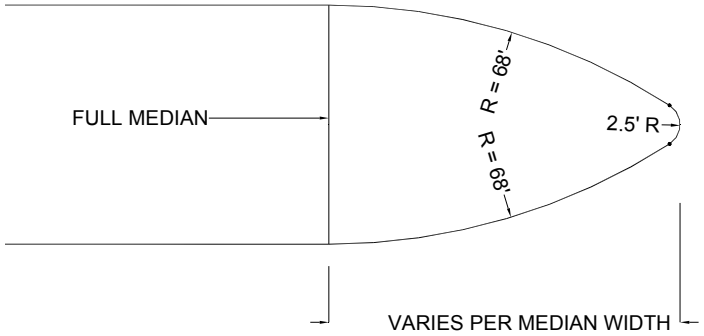
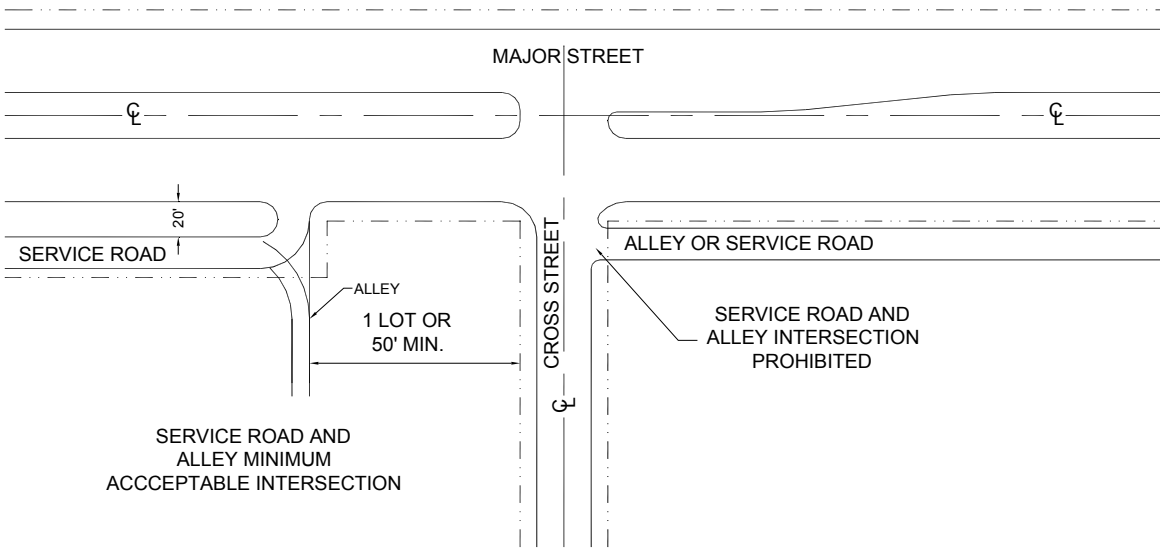


FIGURE 5

PARALLEL SERVICE ROAD/ALLEY MINIMUM INTERSECTION AT A MAJOR ROAD



SECTION III
ALLEY AND SERVICE ROAD DESIGN STANDARDS

A. Alley Intersections – Alleys shall not intersect any thoroughfare with a median. Alleys which run parallel to and share a common right-of-way line with a major thoroughfare shall turn away fro the major street not less than one subdivision lot width or a minimum of 50 feet (whichever is greater) from the cross street intersection as indicated in Figure 8. All alley intersections with streets shall be perpendicular or radial, within a five-degree tolerance, at the intersection of the right-of-way lines. Alley offsets along residential streets shall be less than 13 feet or greater than 75 feet measured from alley R-O-W to alley R-O-W.

B. Alley Radius – Alley radii at street intersections shall not be less than 15 feet.

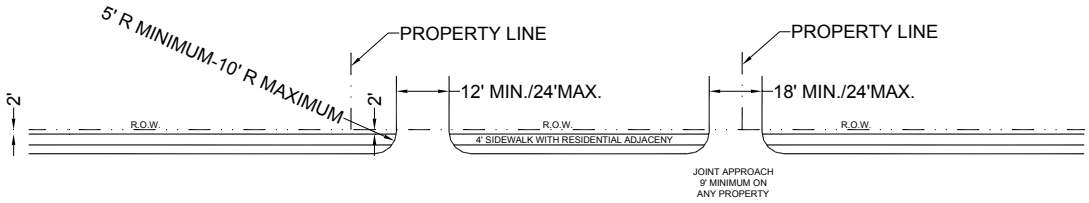
SECTION IV
DRIVEWAY DESIGN STANDARDS

A. Definition of Driveway Types – For purposes of interpreting the provisions of these Rules and Regulations, the following definitions apply:

1. A "residential" driveway provides access to a single-family residence, to a duplex, or to a multi-family building containing five or fewer dwelling units. These drives shall intersect Type A2, C and R roadways only. All access to residential property abutting all other thoroughfares shall be off an alley or a service road.

FIGURE 6A

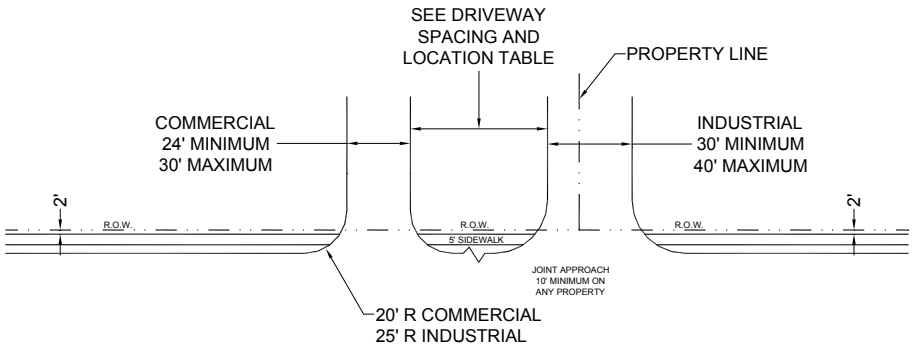
DRIVEWAY WIDTH, RADIUS, SPACING FOR RESIDENTIAL DRIVEWAYS



2. A "commercial" driveway provides access to an office, retail or institutional building, or to a multiple-family building having more than five dwelling units. It is anticipated that such buildings will have incidental truck service. Commercial drives shall access Major or Secondary Thoroughfares only.

FIGURE 6B

DRIVEWAY WIDTH, RADIUS, SPACING FOR COMMERCIAL DRIVEWAYS

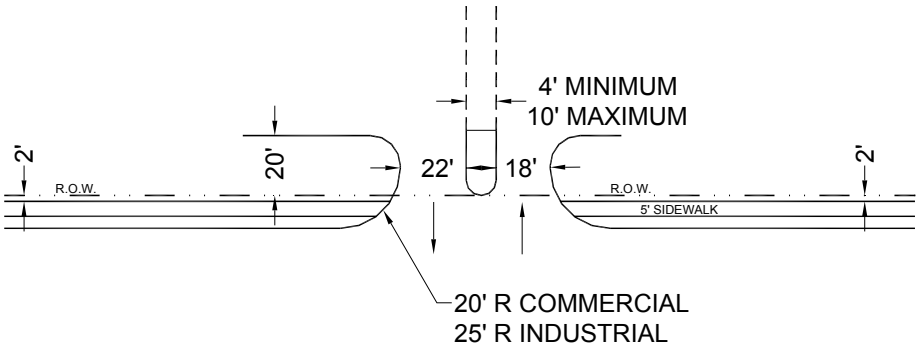


3. An "industrial" driveway serves truck movements to and from loading areas of an industrial facility, warehouse, or truck terminal. A

centralized retail development, such as a community or regional shopping center, may have one or more driveways specially designed, signed, and located to provide access for trucks and such driveways whose principle function is to serve administrative or employee parking lots shall be considered commercial driveways. Industrial drives shall access Major or Secondary Thoroughfares only.

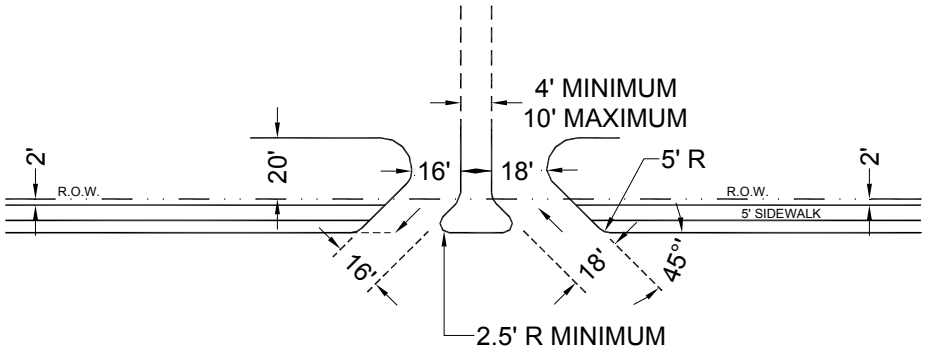
FIGURE 6C

DRIVEWAY WIDTH, RADIUS, SPACING FOR INDUSTRIAL DRIVEWAYS



Note: Two-way driveways shall always be designed to intersect the street at a 90-degree angle. One-way driveways may be designed to intersect a street at a 45-degree angle.

FIGURE 6D
DRIVEWAY WIDTH



B. Driveway Width – As the term is used here, the width of a driveway refers to the width of pavement at the property line.

1. Residential driveways onto streets shall have a minimum width of 12 feet and a maximum width of 24 feet (see Figure 9 (a)).
2. Commercial/Industrial drives with two-way operation:

    a. Commercial driveways shall have a minimum width of 24 feet and a maximum width of 30 feet. 35 or 40-foot drives may be used for service stations.

    b. Industrial driveways shall have a minimum width of 30 feet and a maximum width of 40 feet (see Figure 9 (b)). 35 or 40-foot drives may be used for service stations.

3. Commercial/Industrial – One way operation:

    a. 90 degree drives shall have a width of 18 feet with a 30 foot radius for ingress and 22 feet for egress, with the

separation median width being a minimum of 4 feet and a maximum of 10 feet (see Figure 9(c)).

b. 45 degree drives shall have a width of 18 feet for ingress and 16 feet for egress, with the separation median width being a minimum of 4 feet and a maximum of 10 feet (see Figure 9 (d)).

C. Driveway Radius – All driveways intersecting dedicated streets shall be built with a circular curb radius connecting the 6-inch raised curb of the roadway to the design width pavement of the driveway. Driveway radii shall fall entirely within the subject property so as to begin at the street curb, at the extension of the property line.

1. 90 Degree Intersection

   a. The curb radii for a residential drive shall be a minimum of 5 feet and a maximum of 10 feet (see Figure 9(a)).

   b. The curb radii for a commercial drive shall be 20 feet (see Figures 9(b), 9(c)).

   c. The curb radii of an industrial driveway shall be 25 feet (see Figures 9(b), 9(c)).

2. 45 Degree Intersection

   a. The curb radii shall be 5 feet for the outside of the drive and 2-1/2 feet for the median.

   In order that the definition of the location of the edge of pavement for the thoroughfare may be maintained, driveway radii shall always be designed to become tangent to the street curb line.

D. Driveway

Spacing and Location in relation to Other Drives

Residential

Driveway approaches on a tract of land devoted to one use shall not occupy more than 70% of the frontage abutting the roadway. No more than two driveway approaches shall be permitted on any parcel of property on each street.

Commercial and Industrial

The spacing and location of driveways shall be related to both existing adjacent driveways and those shown on approved development plans. The spacing between driveways shall depend upon the speed limit of the A1 or A2 Thoroughfare as shown in Table 7. Driveways shall not be permitted in the transition area of any deceleration lane or right turn lane.

Spacing between driveways will be measured along the property line from the edge of one driveway to the closest edge of the next driveway and not from centerline to centerline (see Figure 9 (b)).

E. Driveway

Spacing in Relation to a Cross Street

1. 90 Degree Intersection – Drive to Road
   a. Driveways that intersect at 90 degrees to a residential or "secondary street" shall be located a minimum of the drive radius from a residential street's end of curb radius.
   b. A driveway that intersects at 90 degrees to a residential or secondary street shall be located a minimum of 30 feet from a secondary or major street's end of curb radius (see Figure 7a).
   c. A driveway that intersects at 90 degrees to a major street shall be located a minimum of 100 feet from any intersecting street's right-of-way. If the property length, along the street, is such that both the drive and the drive's curb radius cannot be totally within the

proposed development, the drive shall be situated so as to be a joint access drive (see Figure 7b).

2. 45 Degree Intersection – Drive to Road

   a. If one-way angle drives are used, the radius for the driveway on a residential or secondary may not begin less than 35 feet from an intersecting street's end of curb radius.

   b. On a major street the drive shall be located a minimum of 100 feet from any intersecting street's right-of-way. If a property length, along the street, is such that both the drive and drive's curb radius cannot be totally within the proposed development, the drive shall be situated so as to be a joint access drive (see Figure 7c).

FIGURE 7A

DRIVEWAY SPACING IN RELATION TO A CROSS STREET 90° DRIVE INTERSECTING A C OR R

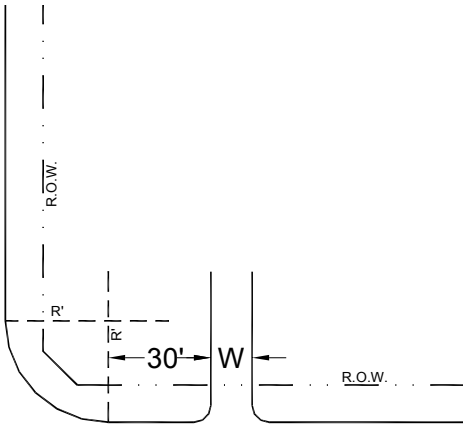


FIGURE 7B

DRIVEWAY SPACING IN RELATION TO A CROSS STREET 90° DRIVE INTERSECTING A A1

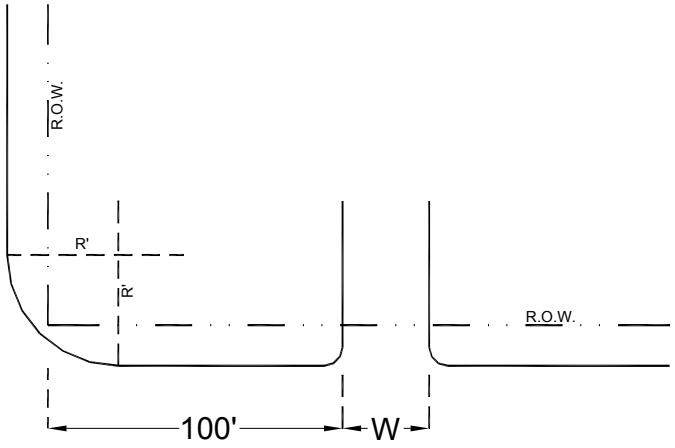


FIGURE 7C

ANGLE DRIVEWAY SPACING IN RELATION TO A CROSS STREET

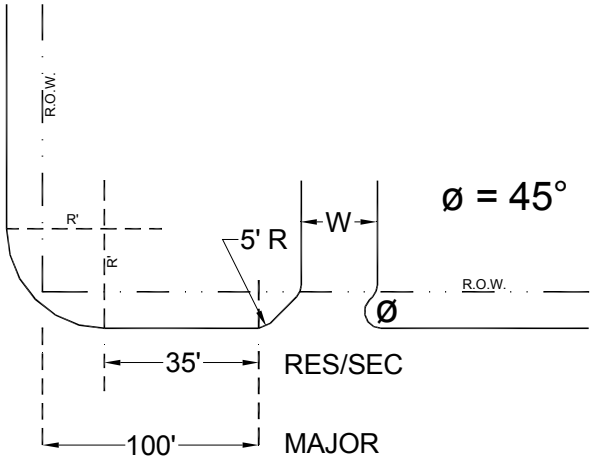


TABLE 5
DESIGN SPEED AND MINIMUM DRIVEWAY SPACING

STREET TYPE	DESIGN SPEED (MPH)	MINIMUM DRIVEWAY SPACING (FT)
C, R	30	90
A2	35	100
A1	40	120